

Appl. No. 10/687,299
Amdt. Dated Dec. 13, 2005
Reply to Office Action of Sep. 13, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A patch antenna comprising:

a planar ground plane;

a radiating element parallelly disposed above the ground plane with a predetermined distance;

a plurality of dielectric supporting portions disposed between the ground plane and the radiating element for supporting the radiating element;

a match tab electrically connected with the radiating element; and

a feeder cable comprising an inner conductor electrically and directly mechanically connecting with the match tab and an outer shield conductor electrically and mechanically connecting with the ground plane.

Claim 2 (original): The patch antenna as claimed in claim 1, wherein the ground plane comprises a main ground plane, a sub-ground plane disposed above the main ground plain and a shorted strap for connecting the sub-ground plane to the main ground plane.

Claim 3 (original): The patch antenna as claimed in claim 2, wherein the cable outer shield conductor is electrically connected with the sub-ground plane.

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Claim 4 (original): The patch antenna as claimed in claim 3, wherein the sub-ground plane is coplanar with the match tab.

Claim 5 (original): The patch antenna as claimed in claim 4, wherein the match tab and the radiating element are formed by one metal sheet.

Claim 6 (original): The patch antenna as claimed in claim 4, wherein said radiating element and match tab are coplanar with each other.

Claim 7 (currently amended): A patch antenna for an electronic device, comprising:

- a planar metal sheet comprising a first element, a second element and a connecting patch connecting the first element with the second element;

- a first ground plane disposed adjacent to the first element;

- a second ground plane parallelly spaced from the metal sheet a predetermined distance;

- a shorted patch connecting the first ground plane to the second ground plane;

- a plurality of dielectric supporting portions disposed between the metal sheet and the second ground plane to support the metal sheet; and

- a feeder cable comprising an inner conductor electrically and directly mechanically connecting with the first element and an outer shield conductor electrically and mechanically connecting with the first ground plane.

Claim 8 (original): The patch antenna as claimed in claim 7, wherein

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the first ground plane is coplanar with the metal sheet.

Claim 9 (original): The patch antenna as claimed in claim 8, wherein the feed cable lies on the first ground plane.

Claim 10 (original): The patch antenna as claimed in claim 9, wherein the first and second elements are both rectangular.

Claim 11 (original): The patch antenna as claimed in claim 7, wherein the first element and the second element are coplanar with each other.

Claim 12 (currently amended): A patch antenna for an electrical device comprising:

a first element, a second element and a connecting patch connecting the first element with the second element;

a ground portion disposed adjacent to the first element; and

a feeder cable comprising an inner conductor electrically and directly mechanically connecting with the first element and an outer shield conductor electrically connecting with the ground portion;

wherein the connection patch has a characteristic impedance same as that of the input impedance of the second element.

Claim 13 (original): The antenna as claimed in claim 12, wherein a plurality of dielectric supporting portions are disposed between the metal sheet and the ground portion to support the metal sheet..

Claim 14 (original): The patch antenna as claimed in claim 13,

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wherein the first element, the second element and the connecting patch are formed in one metal sheet.

Claim 15 (original): The patch antenna as claimed in claim 14, wherein the ground portion comprises an upper ground plane, a lower ground plane and a short patch connecting the upper ground plane to the lower ground plane.

Claim 16 (original): The patch antenna as claimed in claim 15, wherein the outer shield conductor electrically connects with the upper ground plane.

Claim 17 (original): The patch antenna as claimed in claim 16, wherein the metal sheet is parallel to the lower ground plane.

Claim 18 (original): The patch antenna as claimed in claim 12, wherein said first element and said second element are coplanar with each other.

Claim 19 (canceled)

Claim 20 (previously presented): The patch antenna as claimed in claim 1, wherein the match tab indirectly mechanically connected with the radiating element via a connecting patch which is not grounded to the ground plane.